

PPRC Infrastructure and Optimization

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Infrastructure and Optimization Direction

- **Team Introduction**
- **Vulcan Client**
- **Heterogeneous Components**
- **Run Time Optimization**

Team Mission

- **To develop technologies that improve the performance of Microsoft products**
- **Delivery Vehicles:**
 - **Tools**
 - **SDK's**
 - **Publications**

The Team

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Vulcan

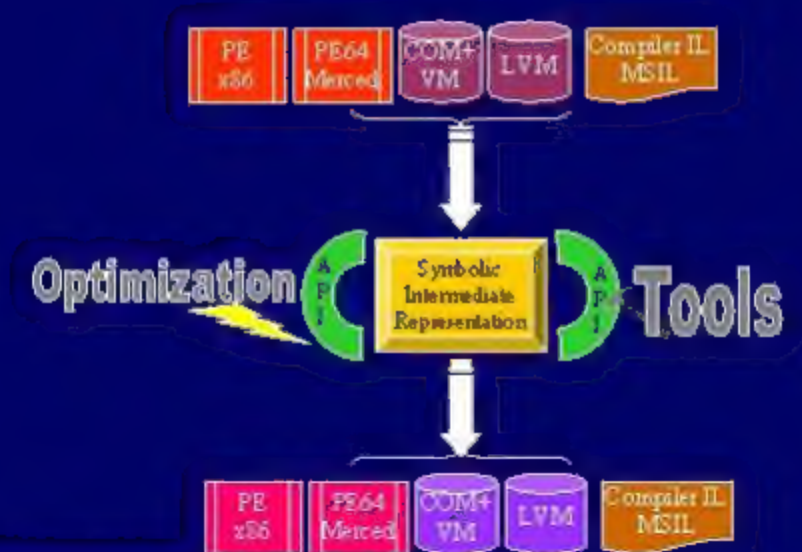
PPRC Infrastructure and Optimization

Vulcan



- **Vulcan 1.1 – A general toolkit for binary analysis and editing**
 - Vulcan provides a powerful and easy way to analyze and modify executables
 - API allows custom tools to be written quickly
 - Handles PE Binaries for x86, IA64 and CEF Bytecode.
 - Adaptable to additional architectures

The Vulcan Framework





Vulcan Client

- **Supports low overhead binary modification**
- **Allows deployment of Client side binary modification**
- **Examples:**
 - Vulcan Client allows for extremely compact binary level patching
 - PSS analysis and resolution of customer problems
 - Ongoing license modification (encryption)

Vulcan Patch Delivery

Develop Modified
Binary

Diff Between
Original and
Modified Binary

Build Vulcan
Client Patch

Deliver Patch
To Client

Apply Patch
With Vulcan
Client

PSS Problem Analysis

PSS identifies
Binary Version

Use Injector
To Insert Error
Tests

Deliver Patch
To PSS
Customer

High-level components

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Heterogeneous Components

Supported PE Formats

- X86

- IA64

- CEF Bytecode

- Provide Support to switch between instructions

- Generated binary including multiple formats

Heterogeneous Components

- Additional Vulcan inputs raise the possibility of creating mixed binaries

- Trade off size versus speed

- Examples:

- Mixing IA64 and x86 will allow good caching/paging and good performance

- Mixing CEF with native code blends portability with fast execution

Hyper Text Markup Language

HTML Markup and Optimization

Future Test Optimization

- Look at whole spectrum of performance
- Use Machine/user specific optimization
- Delayed Optimization Opportunities
 - Install time
 - Load time
 - Run time
 - Post-run time
- Delivery Methods
 - Transparent dynamic optimization/profiling
 - Performance service over internet

Client Side Run Time Optimization

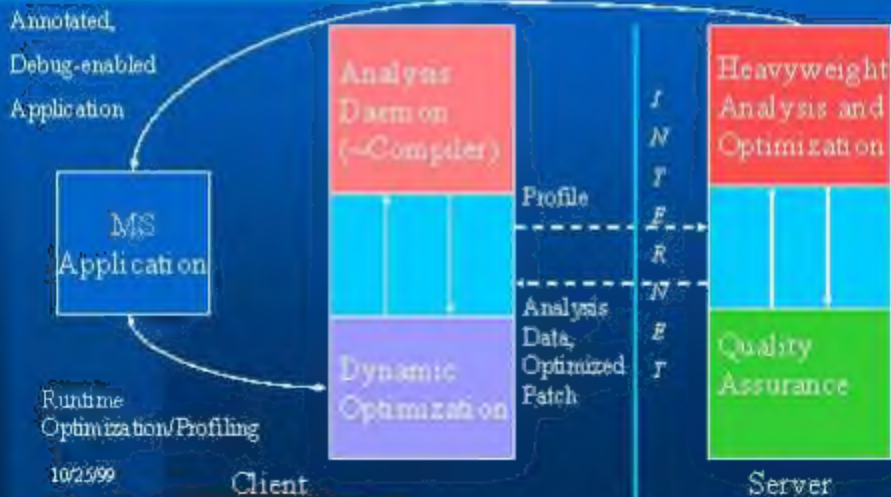


Runtime
Optimization/Profiling

10/25/99

Client/Server

Run Time Optimization Schematic



PPRC Infrastructure and Optimization

- Improving the infrastructure
 - Vulcan Client
 - Enhancements to Vulcan
- Improving Performance
 - Heterogeneous Components
 - Run Time Optimization
 - Enhancements to BBT

Questions?